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June 25, 1995

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF SECRETARY

David Furth
Federal Communications Commission
Deputy Chief, Legal
2025 M Street N.W.
Room 5202
Washington D.C. 20554

Dear Mr. Furth,

Representatives from Ericsson visited you, Rosalind Allen, Sally Novak and D'Wanda Speight regarding the PR Docket 93-144 and PP Docket No. 93-253. During the discussion, questions were raised concerning whether retuning SMRS to other frequencies is comparable to adding additional channels to a system. And, what the options would be in integrating new subscribers onto an existing system when an SMR purchases another system. Ericsson has prepared information that will address these issues.

Is retuning/displacing SMR channels comparable to adding SMR channels to an existing system? What are the costs involved and what is the process?

Cost of Retuning A 5 Channel SMR System:

Assume a SMR licensee is currently operating a 5 channel system which is assigned channels 401, 441, 481, 521, and 561 (which correspond to 861.0125, 862.0125, 863.0125, 864.0125, and 865.0125 MHz, respectively). Further assume that the licensee's system is fully loaded, providing service to 500 mobile units and 300 roaming units. If the licensee is required to retune its system to 5 channels in the lower 80 channel SMR band, the following costs would be incurred.

Each of the 500 resident mobile units and the 300 roaming units would have to be reprogrammed to operate on the new channels, assuming that the radio was capable of operating over the entire range of 800 MHz SMR spectrum. Because a change of this nature is not being performed for the benefit of the customer or voluntarily by the SMR licensee, to avoid customer dissatisfaction the reprogramming would have to be done as transparently as possible.

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The SMR's technician would have to travel to each customer's location and reprogram the 800 mobile units in question. A service call of this nature would take 2-3 hours per mobile unit and would cost the SMR licensee approximately $150 in personnel costs. These costs do not include possible overtime and weekend charges which might be necessary to reduce the burden to the customer. Nor, as described below, do the costs include the adverse impact on the SMR's system resulting from the technician not being able to perform the day to day maintenance on the SMR system. Technicians would also have to retune each of the 5 base stations at a cost of $300.

While each mobile is being retuned and is out of service, the SMR licensee will lose revenue of approximately $2.35 per day. Based on the assumption of 800 units having to be reprogrammed, the SMR licensee will lose approximately $188,000 in subscriber revenue.

Lastly, certain changes will have to be made to the antenna system at a cost of approximately $300.

Costs (Best Case):
Assuming all Radios Could be Retuned and No Redundancy

	No. of Radios	Cost to Retune	Total
Mobiles/Portables	500+300	$150	$120,000
Base Stations	5	$300	$1500
Antenna Systems (5 Channel Combiner or Multicoupler)	1	$300	$300
Loss of Revenue	800	$2.35/Day(100)	$188,000
		TOTAL	$309,800
		Economic Payback=0	

Some SMRs may choose a different option to accomplishing mandatory retuning. They may not be satisfied with the subscriber disruption caused by units being taken out of service. Also, some older mobile units are not capable of being retuned since they can not operate over the entire 800 MHz SMR frequency range. These mobile units will have to be replaced. Moreover, because many small SMR operators generally have only one technician who can retune radios, the 2436 man hours that would be necessary to accomplish the process of retuning, would wreck havoc on the day to day maintenance normally required for SMR systems. As a result, some SMR licensees will prefer to construct a new, redundant system which mirrors the old system except with respect to the frequencies in use. Assuming 50% of the old units would be retuned and 50% of the old units would have to be replaced, under this scenario additional hard costs will be incurred, including but not necessarily limited to, the cost of purchasing mobile radios on the new frequencies, base stations to build a geographically colocated system, tower space rental, antennas and a 5 channel combiner or multicoupler.

Costs: Assuming 50% of Radios Must Be Replaced and the Redundant Stations are Required

	No. of Radios	Cost to Retune	Total
Mobiles/Portables	250+300	$ 150	$ 82,500
Replace	250	1,000	250,000
Base Stations	5	12,000	60,000
Tower Space Rental/Install	1	6,000	6,000
Antenna Systems (5 Channel Combiner or Multicoupler)	1	17,000	17,000
			Total: $415,000
			Economic Payback: 0

Cost of Adding Channels:

An SMR will typically add channels to a 5 channel system when it has approximately 350 users. After receiving authorization from the FCC for 5 additional channels, "new users" would be added to the "new channels".

"Old customers", i.e. those on the system prior to the addition of 5 new channels, would have their mobile radios reprogrammed to be able to utilize the new frequencies (1) when they choose to have this done or (2) when they bring their mobile units to the SMR licensee for normal service and/or maintenance. In other words, the old radios will be gracefully retuned to the newly added channels so users can ultimately operate on all 10 channels licensed to the operator.

Relative to mandatory retuning, there are a number of advantages to an SMR when new channels are added to a system. For example, new channels will typically have less traffic on them and users will be inclined to use these channels. The SMR licensee generates revenue by adding customers to its newly expanded system rather than expend revenue by merely swapping channels in the retuning scenario. Additionally, the process of reprogramming mobile units is spread out over many years which substantially reduces the inconvenience to the SMR licensee and its customers. Also, it is unlikely that the SMR would apply for expansion channels in which the radio users on the current system are unable to operate.

Costs of Adding 5 Channels:

Cost of acquiring 5 channels interconnected SMR system	85000
Tower Space Rental/Per Month	1500
Installation/Antenna	4000
	Total Cost = $90,500

Economic Payback

500 Users
$2.35 per day
$2.35 X 500 X 365 days=$428,875

Cost of Integrating Users Onto a Single System When A SMR Purchases 5 Channels which are Already Loaded and Operational

Assume that a five channel SMR licensee buys five channels from another SMR. Also, assume that the formats are interoperable.

The costs of adding the five channels would be the purchase price of the system. The systems would be integrated together at the pleasure of the licensee. For example, if the usage on 5 of the channels was much higher than the other five channels, high capacity users would be programmed to all 10 channels to even out the channel traffic.

If the format of the channels was not compatible (e.g. Motorola and Ericsson equipment is not interoperable) the licensee would have several choices:
a. Change (buy) equipment (stations, mobiles and portables) from format B to match format A
b. Change (buy) equipment (stations, mobiles and portables) from format A to match format B
c. Change all equipment (stations, mobiles and portables) from formats A and B to a new format C.
or
d. Run two separate systems using both both A and B formats.

Conclusion

Comparing retuning/displacement of existing SMRs to adding channels is an incongruent analogy. Investment in additional channels will have an ultimate economic benefit. However, merely swapping channels will be disruptive and not have any positive economic or operational benefits on the end user or SMR licensee.

Sincerely,

Barbara Baffer

Barbara A. Baffer
Manager, Regulatory Programs

cc: Ms. Rosalind Allen
Ms. Sally Novak
Ms. D'Wanda Speight